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1. 1/5/1 (Item 1 from file: 123)

2851861

Status Changes:**REISSUE REQUESTED****Assignee:**

Zenon Environmental Inc CA

Patent Issue

Number Date

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Patent:

US 5639373

19970617

Reissue Requested:

Request Request Recorded Exam. Reissue

Number Date in OG Group Patent No.

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09/333669	19990615	19990803	1723	US RE37549
08/514119				
20011011	20020409	1723		

2. 1/5/2 (Item 1 from file: 351)

011187152 **Image available**
 WPI Acc No: 1997-165077/199715

Multi-component liquid micro-filtration apparatus with surface cleaning - has vertical skeins formed of a number of equ hollow fibres each end held in headers where air discharged at s produces bubbles in quantity large enough to scrub the fibres.

Patent Assignee: ZENON ENVIRONMENTAL INC (ZENO-N)

Inventor: BEHMANN H; HENSHAW W J; MAHENDRAN M; PEDERSEN S K; RODRI F

Number of Countries: 027 Number of Patents: 013

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9706880	A2	19970227	WO 96CA536	A	19960808	199715
AU 9666528	A	19970312	AU 9666528	A	19960808	199727
US 5639373	A	19970617	US 95514119	A	19950811	199730
WO 9706880	A3	19970501				199732
TW 320661	A	19971121	TW 96109723	A	19960810	199811
EP 846023	A2	19980610	EP 96926288	A	19960808	199827
			WO 96CA536	A	19960808	
US 5783083	A	19980721	US 95514119	A	19950811	199836
			US 96690045	A	19960731	
AU 715364	B	20000203	AU 9666528	A	19960808	200016
KR 99036232	A	19990525	WO 96CA536	A	19960808	200032
			KR 98700900	A	19980206	
CA 2227692	C	20010417	CA 2227692	A	19960808	200128
			WO 96CA536	A	19960808	
EP 1170052	A1	20020109	EP 96926288	A	19960808	200205
			EP 2001120849	A	19960808	
US 37549	E	20020219	US 95514119	A	19950811	200221
			US 99333669	A	19990615	
EP 1213048	A1	20020612	EP 96926288	A	19960808	200239
			EP 2002951	A	19960808	

Priority Applications (No Type Date): US 96690045 A 19960731; US 9 19950811; US 99333669 A 19990615

Cited Patents: 2.Jnl.Ref; JP 7136470; JP 63143905; WO 9411094

Patent Details:

Patent No	Kind	Lat	Pg	Main IPC	Filing Notes
WO 9706880	A2	E	78	B01D-063/62	

Designated States (National): AU BR CA CZ HU JP KR PL

Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE NL PT SE

AU 9666528 A B01D-053/62 Based on patent WO 9706880

US 5639373 A 29 B01D-065/02

TW 320661 A D04H-001/02

EP 846023 A2 E B01D-063/02 Based on patent WO 9706880

Designated States (Regional): DE FR GB IT NL

US 5783083 A B01D-061/00 CIP of application US 95514111

CIP of patent US 5639373

AU 715364 B B01D-053/62 Previous Publ. patent AU 9666
Based on patent WO 9706880

KR 99036232	A	B01D-063/12	Based on patent WO 9706880
CA 2227692	C E	B01D-065/02	Based on patent WO 9706880
EP 1170052	A1 E	B01D-063/02	Div ex application EP 9692628
			Div ex patent EP 846023

Designated States (Regional): DE FR GB IT NL
US 37549 E B01D-065/02 Reissue of patent US 5639373
EP 1213048 A1 E B01D-063/02 Div ex application EP 9692628
Div ex patent EP 846023

Designated States (Regional): DE FR GB IT NL
Abstract (Basic): WO 9706880 A

A micro-filtration appts. has first and second headers ver spaced apart at a fixed distance, the lower within the liq. su Each header securely holds one end of a number of hollow fibre membranes each of equal length which is 0.1 to 5% greater than length between the headers permitting restricted movement of t central fibre portion independent of the movement of another f which are subjected to transmembrane pressure differential in 0.1 to 50 psi.

Also claimed are: (i) permeate collecting means sealing co in fluid communication with permeate discharge face of each he a means to withdraw the permeate; (ii) gas scrubbing assembly; process for maintaining the outer surfaces of the membranes fr build-up; (iv) method of forming a skein; and (v) a header hav potted hollow fibre membranes.

USE - Micro filtration of multicomponent liqs., e.g. fruit for clarification, waste water, proteinaceous dairy products i cheese whey, activated sludge etc..

ADVANTAGE - Effectively cleans the filter media which is u overcoming problems of fibre rotating, bunching together and ab each other as experienced in prior art.

Dwg.9/20

Abstract (Equivalent): US 5639373 A

In a microfiltration membrane device, for withdrawing perm essentially continuously from a multicomponent liquid substrat increasing the concentration of particulate material in it, in multiplicity of hollow fibre membranes, or fibres, unconfined shell of a module, the fibres together having a surface area > the fibres being swayable in the substrate, the fibres being s a trans-membrane pressure differential in the range 0.7 kPa (0 to 345 kPa (50 psi), and each fibre having a length > 0.5 m; a header and a second header disposed in transversely spaced-apart relationship with the second header within the substrate; the header and the second header having opposed terminal end porti each fibre sealingly secured in it, all open ends of the fibre extending from a permeate-discharging face of at least one header permeate collection means to collect the permeate, sealingly c in open fluid communication with a permeate-discharging face o the headers; and, means to withdraw the permeate; the improvem comprising, the fibres, the headers and the permeate collectio together forming a vertical skein where the fibres are essenti vertically disposed and terminal end portions of individual fi potted in proximately spaced-apart relationship in cured resin first header being upper and disposed vertically spaced-apart relationship above the second header, with the opposed faces a

distance; each of the fibres having the same length, the length from 0.1% to > 5% greater than the fixed distance so as to permit restricted displacement of an intermediate portion of each fibre independently of the movement of another fibre.

Dwg. 0/13

Derwent Class: D13; D15; J01

International Patent Class (Main): B01D-053/62; B01D-061/00; B01D-
B01D-063/12; B01D-063/62; B01D-065/02; D04H-001/02

International Patent Class (Additional): B01D-063/04

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